

## COMBINED TOY/BOTTLECAP SYSTEM

## TECHNICAL FIELD

- 5 This invention relates to bottlecaps and combinations of bottlecaps to construct an object.

## BACKGROUND TO THE INVENTION

- 10 Bottlecaps provide the function of sealing contents within a bottle while allowing access to those contents by unscrewing or otherwise removing the bottlecap from the bottle.

- Benefits can be obtained from expanding the function of the bottlecap to extend  
15 beyond its purely sealing function to provide a novelty item which will increase the attractiveness of the product being sold in the bottle.

- A number of attempts to expand the functionality of the bottlecap have been made, including constructing the bottlecap in such a way as to provide a building block  
20 such that upon combination of multiple bottlecaps/building blocks, a particular structure can be formed.

- Other extensions of bottlecap functionality include constructing the bottlecap in the form of a container which can contain a small novelty item.

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It is an object of the present invention to provide an alternative extension of the function of bottlecaps.

## SUMMARY OF THE INVENTION

According to a first aspect of the present invention there is provided a bottlecap for engaging a bottle, the bottlecap including:

- 5           a bottle engaging portion for engaging the bottle;
- a body portion; and
- a bottlecap engaging portion for engaging a second bottlecap, the second bottlecap also having a bottle engaging portion, a body portion and a bottlecap engaging portion; wherein
- 10       upon combination with the second bottlecap, a yoyo body is formed.

According to a second aspect of the present invention there is provided a system of bottlecaps, including a first bottlecap and a

- second bottlecap, for engaging respective bottles, each bottlecap including;
- 15       a bottle engaging portion for engaging respective bottles;
- a body portion;
- a bottlecap engaging portion for engaging the second bottlecap in the case of the first bottlecap, and for engaging the first bottlecap in the case of the second bottlecap, wherein, upon engagement of the first bottlecap with the second
- 20       bottlecap, a yoyo body is formed.

According to a third aspect of the present invention, there is provided a method of advertising, the method including placing advertising on a bottlecap according to the first aspect of the invention.

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According to a fourth aspect of the present invention, there is provided a yoyo having two halves connected together, at least one half including a display portion for displaying information, wherein at least one of the display portions includes a display piece which is removably attached to a respective half.

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According to a fifth aspect of the present invention, there is provided a yoyo formed by connecting together the two bottlecaps of the system according to the second aspect of the invention.

## 5 BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described in detail with reference to the following figures in which:

- Figure 1 – shows two bottles of the system of the present invention with respective  
10 bottlecaps;
- Figure 2 – shows an exploded perspective view of each bottlecap;
- Figure 2a – shows a detail of an interaction between the bottlecap disc and bottlecap  
lid of Figure 2;
- Figure 3 – shows an exploded side view of the two bottlecaps;
- 15 Figure 4a – shows a perspective view of the bottlecap lid;
- Figure 4b – shows a plan view of the bottlecap lid from below;
- Figure 4c – shows a side view of the bottlecap lid;
- Figure 4d – shows a plan view of the bottlecap lid from above;
- Figure 5a – shows a perspective view of the bottlecap disc;
- 20 Figure 5b – shows a plan view of the bottlecap disc from below;
- Figure 5c – shows a side view of the bottlecap disc;
- Figure 5d – shows a plan view of the bottlecap disc from above;
- Figure 6a – shows a perspective view of the peg;
- Figure 6b – shows a plan view of the peg of Figure 6a;
- 25 Figure 6c – shows a side view of the peg of Figure 6a;
- Figure 6d – shows another side view of the peg of Figure 6a;
- Figure 7a – shows a perspective view of the peg casing;
- Figure 7b – shows a different perspective view of the peg casing of Figure 7a;
- Figure 8a – shows a side view of a completed yoyo body;
- 30 Figure 8 b – shows a plan view of the completed yoyo body of Figure 8a; and

Figure 9 – shows a cross section of the completed yoyo body along section A-A' of the yoyo body of Figure 8b.

Figure 10a – shows a perspective exploded view of the bottlecap adapted for use as a yoyo.

- 5 Figure 10b – shows an assembled side view of the bottlecap adapted for use as a yoyo.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

- 10 In Figure 1, there is shown two bottles containing a vendible product, for example a soft drink. The bottle 100 shown in part A of Figure 1 is identical to bottle 101 shown in part B of Figure 1. These bottles may be of conventional construction as would be understood by the person skilled in the art.
- 15 Bottle 100 shown in part A of Figure 1 is sealed by bottlecap 200 while bottle 101 shown in part B of Figure 1 is sealed by bottlecap 300. A food grade hygienic seal 500 is placed over exposed parts of the bottlecap to prevent contamination of the liquid within the bottles. Seal 500 will be described in more detail below.
- 20 In accordance with the present invention, each bottlecap 200 and 300 form one half of a yoyo body. Upon removal of each bottlecap 200, 300 from their respective bottles 100, 101, and upon joining the two bottlecaps together as will be described in more detail below, a yoyo body is formed.
- 25 In practice, some bottles may have the male bottlecap 300, while others have the female bottlecap 200, or, for simplicity, all bottles will have the male bottlecap 300. Preferably however, both bottlecaps will be female, and may be connected by a separate peg member as will be described in more detail below.

Figure 2 shows an exploded perspective view of bottlecaps 200 and 300, together with a connecting peg 400. Each bottlecap 200, 300 consists of two parts, bottlecap lid 310 and 210 respectively and bottlecap disc 320 and 220 respectively. In practice, each bottlecap 200, 300 will be identical and any description relating to one bottlecap 200 will be equally applicable to the other bottlecap 300 and vica versa.

Bottlecap lid 210 consists of a dome shaped shell having four tabs 211, 212, 213 and 214 extending from a perimeter 215 of the lid 210.

10 Bottlecap disc 220 consists of a disc having a circular recess 221, the inner surface of which is threaded. Within recess 221, is circular wall 222 which itself defines a well 223.

15 Bottlecap disc 220 also includes a post around which a string for the yoyo may be wrapped for storage. The post is more easily seen on disc 320, referred to as element 328.

20 Bottlecap disc 220 also includes four apertures 224, 225, 226 and 227, which receive corresponding tabs 211, 212, 213 and 214 from bottlecap lid 210. Upon aligning these tabs with their corresponding recesses and pressing bottlecap lid 210 and bottlecap disc 220 together, tabs 211, 212, 213 and 214 will be received within apertures 224, 225, 226 and 227 and will be retained therein by any suitable means. For example, each tab 211 to 214 may be made to be resiliently flexible and shaped so as to be deformed upon insertion in respective apertures 224 to 227 and upon exiting the other side of apertures 224 to 227, will resume their original configurations such that a tip of each tab exits respective recesses and overlaps the perimeter of these recess, thereby securing bottlecap lid 210 to bottlecap disc 220. Alternatively, bottlecap lid 210 may be secured to bottlecap disc 220 by tabs 211 to 214 frictionally engaging respective recesses 224 to 227. Of course, any other suitable means of securement 30 may be used as would be understood by the persons skilled in the art.

Ideally however, bottlecap lid 210 may be secured to bottlecap disc 220 by tabs 211 to 214 being inserted into recesses 224 to 227 and bottlecap lid 210 being rotated so as to "lock" bottlecap lid 210 to bottlecap disc 220. The locking mechanism may be accomplished by providing a small depression 211a to 214a to each of tabs 211 to 214 respectively. Upon rotation, these depressions receive corresponding protrusions disposed on an inner face of recesses 224 to 227.

This is shown in more detail in Figure 2a which shows tab 214 depending from perimeter 215, with recess 214a. Upon insertion of tab 214 into recess 227, and upon rotation of lid 210, tab 214 will engage protrusion 227a, flex as it is forced over the protrusion by the rotation force, and snap back into its normal position, to receive protrusion 227a in depression 214a.

To facilitate the rotation and removal of bottlecap lid 210 from bottlecap disc 220, a series of protrusions 216, providing finger grips are provided around the periphery of bottlecap lid 210.

It is desirable to be able to easily remove bottlecap lid 210 from bottlecap disc 220, firstly to access the string within bottlecap 200, but more importantly, to allow bottlecap lid 210 to act as a collectable token or display piece, on which is displayed a logo or other design, as will be described in more detail below. It will be appreciated that the inner surface of bottlecap lid 210 may also be used for advertising or displaying other indicia.

Peg 400 is provided to connect the two bottlecaps 200 and 300. In use, peg 400 is inserted into respective wells 223 and 323 (not shown) and retained therein via tabs 401, 402, 403 and 404. Tabs 401 to 404 are resiliently flexible which provides the retention means by which peg 400 is secured to bottlecaps 200 and 300. Specifically, upon insertion of peg 400 into well 223 of bottlecap disc 220, tabs 401 and 402 are biased towards each other due to the narrowed circumference of well 223 until peg

400 is received deep enough into well 223 such that tabs 401 and 402 exit on opposite opening of well 223 to assume their original shape, whereby projections at the top of tabs 401 and 402 extend beyond the periphery of well 223 to retain peg 400 within bottlecap disc 220. This arrangement is described in more detail with reference to  
5 Figure 9 below.

In place, tabs 401 to 404 also extend into second well 229 (more easily viewed as second well 329 in bottlecap 300), to allow access to the tabs. The user can place their fingers into second well 229/329 and pinch together tabs 401 to 404, to release peg  
10 400 from bottlecap disc 200 and/or 300.

In practice, one of bottlecaps 200 and 300 may have peg 400 already inserted and used to seal bottles 100 as shown in Figure 1. Referring back to Figure 1, bottle 101 in part B of Figure 1 may have lid 300 with peg 400 (ie, being the male cap) while bottle  
15 100 in part A of Figure 1 may have bottlecap 200 with no peg inserted (ie, female bottlecap). Alternatively, and preferably, each bottle may be sealed with identical cap configurations, with peg 400 being provided separately, for insertion into each bottlecap or provided with both caps as shown in Figure 1. It is also possible for one or the other bottlecap to be manufactured with peg 400, or the like, integrally with it.  
20 In this case, the bottlecaps can be joined directly, without a separate connector piece.

Figure 3 shows the components of Figure 2 from a side view..

Figures 4a to 4d show bottlecap lid 210 from various angles. Figures 5a to 5d show  
25 bottlecap disc 220 from various angles.

Figure 6a shows peg 400 from a different perspective view to that shown in Figure 2. Tabs 401 to 404 are clearly seen with their corresponding projections which assist in securing peg 400 to the bottlecap discs 220 and 320. The central portion 405 of peg

400 forms a channel for receiving a string which is used in the completed yoyo as will be described in more detail below.

Figure 6b shows a top view of peg 400 of Figure 6a. Figure 6c shows a side view of  
5 peg 400 showing the contour of channel 405. Figure 6d shows another side view of  
peg 400 of Figure 6a.

Figure 7a and 7b show a bottlecap cover 500 which may be used in practice to cover  
peg 400 when attached to bottlecap 200 or 300. This is used to protect peg 400 from  
10 the contents of the bottle as well as to protect the contents of the bottle from peg 400  
for maintaining pressure within the bottle and for hygienic purposes. Cover 500 will  
be discarded upon removing the bottlecap from the bottle.

Figure 8a shows yoyo body 600 formed by respective bottlecap lids 200 and 300.  
15 Respective bottlecap lids 200 and 300 are formed by respective bottlecap lids 210 and  
310 and bottlecap discs 220 and 320. The two bottlecap lids are joined by peg 400 (of  
which only section 405 is visible).

Figure 8b is a plan view of the yoyo body 600 of Figure 8a.

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Figure 9 is a cross section view along the lines A-A' of Figure 8b and clearly shows  
the interaction between peg 400 and bottlecap discs 220 and 320. As can be seen,  
projections on tabs 401 to 404 provide the retention means by overlapping beyond  
the periphery of well 223 and 323.

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It will be noted that seal 500 (not referenced) is shown in Figure 9, however, it will be  
understood that seal 500 would be removed and discarded before assembling the  
yoyo.



It can also be seen that tabs 401 to 404 are extended to allow a user to pinch them together to release them from bottlecap discs 220 and 320.

The various components described above may be made by any suitable materials for example, in the case of bottlecap lids 210 and 310, these may be made out of high impact polystyrene (HIPS) which has suitable properties in relation to impact resistance, ease of printing, ease of adhering stickers, is a low cost material and is easy to mould.

Bottlecap discs 220 and 320 may be made from PET which has the desirable properties of good impact resistance, can be made transparent, is a low cost material and is easy to mould.

Peg 400 may be made from acetal NC10 which has the desirable properties of good impact resistance, low friction when spinning the toy, is a low cost material and is easy to mould.

Bottlecap cover 500 may be made out of low density polyethylene (LDPE), which has the advantage of providing good sealing properties, is a low cost material and is easy to mould.

In practice, a string will be required to be attached to peg 400 and may be provided in association with each or some of bottles 100, 101. For example, the string may be provided in a plastic bag somehow adhered to the bottle, or preferably, come contained within the bottlecap and secured to post 228/328.

The outer surface of bottlecap lid 210, 310 (see Figures 1, 2, 4a to 4d, 8a and 8b) can advantageously be used to display any advertising material such as the logo of a company or graphics relating to a current movie or event. The space provided by bottlecap lid 210, 310 provides "vendible" advertising space and may be used as an

additional stream of revenue for the manufacturers of the product contained in bottle 100.

It will be understood that the inner surface may be equally used to display  
5 advertising or other information. This other information may include a surprise  
"win" message.

Also, as previously described, bottlecap lid 210 may be used as a separate collectable  
token and may be swapped with others to complete a "set". Furthermore, the  
10 bottlecap lids being removable also means that they are interchangeable, allowing  
users to customise their yoyos.

It is also conceivable that, bottlecap 300 may be redesigned to engage an existing  
standard bottlecap, rather than the bottle itself. In this way, the bottle and standard  
15 bottlecap may be manufactured in the normal way, with the modified bottlecap  
addition attached at a later date.

Furthermore, bottlecap 300 may be used on its own to form a spinning top. Referring  
now to Figure 10a and 10b, it can be seen how bottlecap 300 may be used as a  
20 spinning top, with bottlecap disc 320 forming the inertial body of the top, and peg  
400 providing an axis for the top to spin on. As can be seen, tabs 401, 402 (see for  
example figure 2), have been replaced by a single element 401 to provide the  
spinning point. Alternatively, disc 320 could be formed so as to have an integrally-  
formed axis or spinning point.

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The top could also benefit from having lid 310 which may bear advertising material  
or some other indicia. Lid 310 may be removable and interchangeable with lids from  
other bottlecaps, and may also be used as collectable tokens as described above.

The bottlecap may also contain a string as previously described, which may be used to energise the spinning top in a conventional manner. Peg 400 may be formed to provide an appropriate anchor for the string as would be understood by the person skilled in the art.

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Described above is a bottlecap and a system of bottlecaps, which provide extended functions beyond the primary function of sealing a bottle. The bottlecaps provide a novelty item for purchasers, a means by which softdrink (for example)

10 manufacturers can increase the sale of their softdrinks and may also provide an additional revenue by providing advertising space for sale to other parties wishing to advertise their products and/or current events. The increase in sale may in part result from the encouragement to buy two bottles to complete the toy.

15 While the above has been described with reference to a particular embodiment, it will be understood that many variations and modifications may be made within the scope of the present invention, as would be understood by the person skilled in the art.